

DOCUMENT RESUME

ED 340 130

EA 023 580

AUTHOR Beaver, John F.
TITLE Sharing the Vision, Power, and Experience: Advocating Technologically Competent Administrators.
PUB DATE Oct 91
NOTE 21p.; Paper presented at the Annual Meeting of the Northeastern Educational Research Association (Ellenville, NY, October 23-25, 1991). For a related document, see ED 334 683.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrator Education; Administrator Effectiveness; *Administrator Qualifications; *Computer Literacy; Elementary Secondary Education; Leadership; *Management Development; Professional Training; *Technological Advancement; *Technological Literacy
IDENTIFIERS *Florida

ABSTRACT

This study sought to identify the technology competence of the educational leaders in West-Central Florida. Mailed surveys were completed by 59 out of 75 educational leaders in this part of Florida, a region noted for its outstanding educational technology programs. Among the findings were: (1) nearly 73% of all respondents rated their personal computer competence as "nil" or "some" (able to turn a computer on and off but little else); (2) five out of six reported they had received six or fewer hours of training; and (3) 64% were dissatisfied or very dissatisfied with the current state of their educational technology programs. A suggested technology course for administrators is described. The recommendation is made to require completion of an administrative computer competence course for administrator certification. The complete list of 36 survey findings is included at the end of the paper for detailed inspection. (12 references) (LMI)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

Sharing the Vision, Power, and Experience:
Advocating Technologically Competent Administrators

Dr. John F. Beaver
SUNY College at Buffalo

ED340130

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

John F. Beaver

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

**Sharing the Vision, Power, and Experience:
Advocating Technologically Competent Administrators**

Dr. John F. Beaver
SUNY College at Buffalo

ABSTRACT

The late 1980s witnessed the rise of many crucial social issues that caused educational leaders to shift their attention from instructional technology to other programs. During these same years, many schools have had fewer resources available to them. This situation promises programmatic chaos unless educational leaders with clear understanding of their instructional computing program needs develop long-range plans that insure those needs are satisfied.

Developing consistent, comprehensive long-range plans that will support educational computing programs requires leaders with a deep understanding of the problems and promises of instructional computing. The findings of a study conducted with 75 educational leaders from western Florida establish that our educational leaders lack the technology competence they'll need to guide their schools into the next millennium.

Our educational leaders need to develop the understanding necessary to guide their instructional technology programs and to have the hands-on experiences that training on administrative uses of technology provides. The training must provide hands-on opportunities for mastering important productivity enhancing applications as well as instruction in leadership competencies including: establishing long-range plans for instructional

technology programs, assessing the cost effectiveness of computer uses, determining the appropriateness of a given technological application, and evaluating the effectiveness of instructional technology programs. If we want educational technology adoption processes guided by leaders with vision and understanding, a course with similar content should be required in each state's leadership certification programs.

Statement of Problem

The late 1980s are witnessing the rise of many crucial social issues that capture the national spotlight and cry loudly for immediate solutions. An increased emphasis on drug education, prevention of teen pregnancy, AIDS awareness, and other current concerns are causing school administrators to shift their attention, and their funds, from instructional computing to other programs. As Mary Jo Langhorne, et al, suggest: "The use of computers in education is not the compelling issue it was five—or even two—years ago. New bandwagons have presented themselves: Higher order thinking skills, merit pay plans, and objective-based education now compete for the attention and funding computers received but a short time ago."⁸ Although educational computing has received strong public support in the recent past, many new topics are monopolizing media attention.

During the past three years, many schools have had fewer resources available to them. When "belt tightening" takes place, some programs receive insufficient support. How have instructional computing programs fared in this environment of financial instability? In 1987, I conducted a national study of outstanding elementary school instructional computing programs. One disturbing finding was that the schools' computer budgets

were very volatile, with few schools having established computer expenses as permanent line items in their school budgets. Kathleen Fulton reports that the Office of Technical Assistance found similar tendencies: state-level profiles indicate that state support is subject to the volatility of economic conditions, and of political and educational priorities in the individual states. Another pattern to emerge from the Beaver study (87) was that funding levels for instructional computing programs had declined dramatically during the late 1980's. The findings indicate that many administrators felt they'd already paid their dues by purchasing some necessary hardware. They were now prepared to allow other important educational issues to take financial precedence. For the most part, they lacked long-range plans to guide the steady development of their programs.²

In addition to the fiscal instabilities, some sources continue to challenge the importance of using computers educationally. A recent New York Times headline states: "Computers are in the classroom, but no one is paying much attention to them." A headline in the Wall Street Journal reads: "Computers Failing as Teaching Aids." The popular media suggest a reduction of interest in educational computing at a time when more support is needed to ensure maintenance of programs. Langhorne, et al, point out, "...there are those who are already concerned about the waning interest in instructional computing and the decline in financial support for microcomputers." This confused situation promises programmatic chaos unless school leaders provide guidance and support. The leaders must develop clear understanding of instructional computing program needs so that they can develop long-range plans that insure those needs are met.

Unfortunately, too few school leaders have the necessary computer competence, and consequently, far too few comprehensive plans exist.

A recent National School Board Association survey of American school districts concluded that there is very little evidence of comprehensive planning for educational computing programs. The survey findings conclude that most district plans "did not have a comprehensive flavor." Why is this true? Developing a comprehensive, long-range plan that will support an educational computing program requires a leader with a deep understanding of the problems and promises of instructional computing. Many of our administrators simply do not have this understanding. Greg Kearsley contends that "administrators often lack any suitable preparation to effectively manage the computing activities in their schools."⁶ I agree; our administrators are being asked to make decisions on a topic for which they are not prepared.

If we expect our administrators to provide the vision and understanding needed to guide the development of instructional computing programs, we must encourage them to increase their computer competence. As Sylvia Chorp argues: "It is generally agreed that more still needs to be done in faculty development if we expect truly broad use of technology in teaching and learning to occur. This should include programs designed for administrators of all levels, to enhance their awareness of technological literacy and their competence in planning for technology utilization."⁴ The administrative programs Chorp references should not be limited to inservice experiences, but should include college level instruction that constitutes a portion of the required program for state administrative certification.

Kathleen Fulton points out that only "...18 states require...that all students in their teaching degree programs or those seeking certification take a course on [educational] computer topics."⁵ About one-third of our states value educational computing enough to mandate it in their teacher education programs. And, if less than one-third of the states require computer education for teacher certification, far fewer require a similar course designed for administrators. Still, without such experience to help administrators develop the computer competencies they need, there will be no clear vision guiding instructional computing programs.

Conceptual Framework:

A study was undertaken to identify the extant state of technology competence of the educational leaders in West-Central Florida—a region of the country recognized for its outstanding educational technology programs. It was hoped the data gathered during the study would establish the technological competence levels of their educational leaders. These data, in term, might serve to ensure that technological adoption plans will include a recognition for the technological training needs of the educational leaders themselves. We need technologically competent leaders to guide our educational technology programs.

Many educational leaders have called for greatly increased computer training for our teachers. For instance, as Robert McCarthy quotes Tom Snyder: "We all made a serious mistake in giving the computers to the kids first. We ignored the teachers, cut them out of the loop, and that's precisely the way to kill a promising educational technology."⁹ Len

Scrogan includes other limiting factors, but agrees with Snyder's main point: "Why isn't technology having a greater impact? Many factors are to blame: insufficient access to computers, inadequate supplies of quality software, and pauper technology budgets all contribute....[but] the most significant factor lies in the fact that the vast majority of teachers today have little or no training in the use of the new technologies."¹¹

In general, even teachers are still not receiving the preparation they need to use technology successfully. Dave Moursund points out: "By and large our colleges of education are doing a miserable job of preparing teachers to deal with the Information Age."¹⁰ Granted, teachers do need more assistance with using technology instructionally. But who is in the best position to insure that the necessary logistical, financial, and psychological support that teachers need is provided for them? Their local administrators, of course, if the administrators understand the unique need for support that instructional computing adoption requires.

Certainly, empowering our teachers—raising their level of technological competence—is very important. I strongly endorse greatly increased staff development efforts to raise teachers' technological understanding and comfort level. However, if the promises of educational technology are to be kept, the education of our administrators is equally—perhaps more—important. Somehow, when we started the computer revolution we forgot to invite the administrators .

It appears, unfortunately, that administrators frequently have no hands-on experience or quite limited hands-on experience with microcomputer experience. Without that personal experience, they can't

really understand the need for continuing support that instructional computing demands. Administrators have to develop the experiential base they'll need to guide their instructional computing programs. One part of that foundation includes the hands-on experiences that a course on administrative uses of microcomputers can provide.

Computer educator David D. Thornburg argues strongly for the need for informed leadership: "Educational computing took its sabbatical last year, and now it's time to get to work, recharged and reinvigorated with energy and enthusiasm. Yes, additional hardware costs more money, but that's not the problem. The problem, as I see it, comes from a lack of vision."¹² Although I agree with Thornberg, I suggest that the road to vision includes journeys through the "slough of frustration"—lost files, confusing screen displays, unclear support documentation, printer malfunctions, hardware and software incompatibilities, information overload—to the "highlands of empowerment"—polished document production; facile data manipulation, swift numerical analysis, powerful instructional delivery. If administrators have no personal experience with microcomputers, they can't really understand the training and support that teachers need to help them learn to master the machines. Without that understanding, developing educational computing vision is not possible.

Methodology:

A study was conducted with 75 educational leaders from West-Central Florida (a region noted for its outstanding educational technology programs) in April, 1991 to ascertain if their leaders have the technological competence necessary to lead their instructional technology

programs wisely. The 75 educational leaders came from building, district, and state level positions. They had been selected to participate in a training program designed to prepare educational leaders for their roles in the next millennium. For this reason, they were considered to be the *leaders-of-the-future*.

A total of 59 responses were received from the 75 individuals sent the survey, for a very representative response rate of 79%. The surveys were distributed and gathered by mail. The responses are reported in descriptive form to profile the technological competence of our current educational leaders and to suggest possible courses of action to address the situation. The findings clearly establish that our educational leaders lack the technology competence needed to guide their schools into the next millennium.

Results, Conclusions, and Implications

The complete survey findings are included at the end of the paper for detailed inspection. Each of the thirty-six items reveal interesting characteristics of the educational leaders who were surveyed. However, several of the survey results are particularly significant, and merit spotlighting. For example, nearly three-fourths (73%) of all respondents rated their personal computer competence as **Nil** or **Some** (able to turn a computer on and off, but little else). More than five out of every six leaders reported that they had received **6** or fewer hours of microcomputer training at their jobs. Unfortunately, six hours constitutes a trivial amount of computer training!

In addition, nearly two-thirds (64%) of the respondents were dissatisfied or very dissatisfied with the current state of their educational technology programs. The leaders recognized that they were not involved in the "best of all worlds" and were not satisfied with that situation. Part of that dissatisfaction stems from their own lack of training and expertise in the appropriate educational use of technology. Most of the respondents reported that they wanted to have additional training to improve their own technological competence.

That point was brought home sharply to me last summer when I taught an educational administration course titled "Administrative Uses of Microcomputers" at SUNY College at Buffalo. My experiences parallel those reported by Kearsley when he taught a similar course three thousand miles away. "Many of the administrators who take the course have had no prior experience with computers and in some cases are antagonistic or anxious about them."

The course I teach is an elective in the educational administration certification program. Course participants are aspiring administrators, individuals seeking administrative certification as a precursor to finding an administrative position. Nearly half of those enrolled in the two sections had no previous computer experience. None! Some were not even familiar with a keyboard.

Most of those without experience shared another characteristic: they are afraid of computers. My experience supports Andrew Barbour's findings from a national survey of administrators: "17% of administrators cite fear of computers among their staffs as a major problem facing their

wider implementation in their school or district.”¹ Although Barbour doesn't mention it, I suspect many administrators share the fear of technology with their staffs. That fear is a fear of the unknown. And that fear, as with all fears of the strange or unusual, dissipates with understanding and familiarity. Those qualities only come with experience.

The course proves rigorous for those starting from scratch, designed as it was to provide a broad range of experiences and insights to participants. However, after completing the course, the participant consensus was that the hands-on expectations provided a critical part of their experience. If they hadn't had the opportunity to master the computer for themselves, they felt that they would not have understood the powers and the problems of technology adoption. When they eventually receive administrative appointments, these leaders-of-the-future will not be guilty of “dumping” hardware on untrained teachers. They understand the need for continued, substantial support, both financial and psychological. The Florida survey further establishes the need for similar training experiences (such as this course) for all educational leaders—even in locations recognized for the outstanding quality of their instructional technology programs.

The administrative uses of technology course includes practical uses, group discussions, individual and co-operative learning experiences, and opportunities to explore in depth a particular application of choice. The applications include the productivity enhancement standards: word processing, data base managing, print merging, spreadsheet developing, chart generating, information interchanging between applications. The

power of each productivity application is discussed—with attention given to how that power applies to the role of an educational administrator.

Each application is also taught during class sessions, using Microsoft's PC Works because of its power, ease of use, and flexibility. In addition, students practice using the application independently while completing assignments which represent typical administrative uses of that application. For instance, once they learn word processing, students are asked to produce an "opening of the school year" letter that demonstrates appropriate use of the powers provided by word processing. The powers mastered include changing font style, font size, font type, spacing, and justification.

After data base management is taught, participants practice it by creating a student information file. Then they demonstrate using the data base program's searching, sorting, and reporting powers by printing out reports appropriate for different situations. The next computer use introduced is print merging—combining word processing and data base powers. Students demonstrate their print merging proficiencies by generating personalized form letters that satisfy on-going administrative communication needs such as parent open house communication, parent conference letters, or field trip announcements.

Once spreadsheets have been mastered, class members use them to create budgets or inventories for their schools. Next, they use the figures from their spreadsheet budgets to generate graphic forms using Work's charting powers. Finally, they combine their understanding of word processing, data bases, spreadsheets, and charting by sharing data from

one application component to another. These integration powers let students develop polished word processed reports that include spreadsheet figures, data base records, and charts.

In addition to the practical applications that focus the course, class participants also engage in varied group discussions and problem solving experiences. These situations provide more pervasive opportunities for applying their computer understandings. Key topics included in course discussions are deciding administrative computer uses, establishing optimal computer adoption approaches, creating stable computer budgets, determining computer placement, planning instructional computing programs, planning staff development of computer competencies, planning computer integration policies, and developing cost-effective policies for computer usage.

Beyond the course's individual and class requirements, each participant is asked to work in a cooperative partnership. This task demands a joint approach to learning a new technology and presenting the pertinent issues it introduces to the rest of the group. Each individual forms a dyad with another class member. Each pair is expected to become familiar with a "new technology" topic of agreed-upon choice and report on its administrative implications to the class-at-large. Suggested subjects that the teams are encouraged to investigate and report on include applications of telecommunications, uses of dedicated input devices (such as scanners and digitizers), the costs and features provided by dedicated applications (like scheduling and attendance programs), the administrative implications of new technologies (including CD-ROM and interactive laser disks), and desktop publishing (and desktop presenting) applications.

These partnership explorations of new technologies help administrators recall the time needed to master each new innovation. That understanding will prove useful to them later when they plan and implement staff development projects designed to encourage the adoption of new technologies.

Each of the elements of the administrative computer competence course expectations are important. Without the hands-on experience, discussions become remote, second-hand experiences. Without the discussions, the hands-on experiences degenerate to software training workshops. Without the discussions and hands-on workshops, the project presentations become "Show-And -Tell" sessions. Together, the three components provide a solid foundation for an administrative computer leadership capable of guiding us steadily into the next decade. The course prepares administrators who can and will model appropriate technology uses in their own school classrooms and offices.

Langhorne, et al, voices a major concern of educational computing advocates: "Educators have an embarrassing history of adopting the latest fad, trying to make those fads meet all needs, becoming dissatisfied because the new idea did not bring success in every application, and so abandoning the innovation and moving on to the next." We don't want the computer to share the fate of instructional television and other educational innovations that came and went. Robert McCarthy expresses this concern well: "The computer is too powerful an educational tool to be cavalierly consigned to the educational broomcloset."

If we are to keep the computer out of McCarthy's broomcloset, we will need the vision and leadership of our school administrators. Our educational leaders must establish long range plans to guide their instructional computing programs. Daniel E. Kinnaman reports the recommendations of the National Education Association's committee on educational technology: "All schools should develop and implement a plan to install a computer with adequate software on the desk of each teacher by 1991. Resources for educational technology must be adequate to provide balanced support for staff development, software, hardware, and research into curriculum integration and development."⁷ To develop such plans we must have informed, knowledgeable, and dedicated planners—planners who have learned the powers and pitfalls of educational technology adoption. The only way to avoid the computer broomcloset is to require our administrators to raise their computer competence. That task can best be accomplished with instruction dedicated to that purpose. A course like the one described here, or a similar one in a different format, should be a required as part of the preparation for receiving and maintaining administrative certification. Our educational leaders must develop a clear understanding of what they are expected to lead.

References

1. Barbour, Andrew. (April, 1987). "Office romance: Why administrators are hooked on technology." *Electronic Learning*.
2. Beaver, John F. (April, 1987). *A national search for quality: An examination of high-quality elementary school instructional computing programs*. Unpublished dissertation, Michigan State University.
3. Bruder, Isabelle. (June, 1989). "NSBA study says largest districts have weak long-range technology plans." *Electronic Learning*.
4. Charp, Sylvia. (June, 1989). "Editorial." *Electronic Learning*.
5. Fulton, Kathleen. (October, 1988). "Preservice and Inservice: What Must Be Done in Both." *Electronic Learning*.
6. Kearsley, Greg (November, 1988). "What Should Today's Administrators Know About Computers?" *Technology Horizons in Higher Education Journal*.
7. Kinnaman, Daniel E. (September, 1989). "NEA committee on educational technology releases report." *Classroom Computer Learning*.
8. Langhorne, Mary Jo, Jean O. Donham, June F. Gross, Denise Rehmke. (1989). *Teaching with computers A new menu for the '90s*. Phoenix: Oryx
9. McCarthy, Robert. (September, 1988) "Making the future work: The road to computer integration." *Electronic Learning*.
10. Moursund, Dave. (June, 1989) "Why are our colleges of education continuing to graduate computer illiterate teachers?" *The Computing Teacher*.
11. Scrogan, Len. (January, 1989). "The OTA report: Teachers, trainers, and technology." *Classroom Computer Learning*..
12. Thornburg, David D. (October, 1988). "A time to take stock of the state of educational computing." *A+ Magazine*..

West-Central Florida Leaders Technology Competence Survey findings

- 1) Do you have regular, easy access to a microcomputer at work?

a) Yes 89 %	b) No 11 %
--------------------	-------------------

- 2) Do you have your own microcomputer at home?

a) Yes 52 %	b) No 48 %
--------------------	-------------------

- 3) How often do you typically use a microcomputer?

a) Seldom 39 %	b) Several times each week 23 %
c) Daily 20 %	d) Often each day 18 %

- 4) On average, for what period of time do you use a computer each week?

a) Less than 1 hour 39 %	b) From 1 to 5 hours 30 %
c) From 5 to 10 hours 21 %	d) More than 10 hours 10 %

- 5) How would you assess your personal computer competence?

a) Nil 21 %	b) Some 52 %
c) Advanced 20 %	d) Expert 7 %

- 6) How do you rate the importance of competent computer use to your success on the job?

a) Of no importance 5 %	b) Of some importance 48 %
c) Of considerable importance 25 %	d) Of great importance 22 %

- 7) In which of the following ways are computers used for administrative purposes at your worksite? (Please check all that apply).

a) None 4 %	b) Word processing 86 %
c) Data bases 93 %	d) Spreadsheets 64 %

- 8) For which of these applications are computers used for administrative purposes at your worksite? (Please check all that apply).

a) None 7 %	b) Data integration 73 %
c) Charting 62 %	d) Telecommunicating 51 %

- 9) Estimate the ratio of the number of administrative employees for each available microcomputer at your worksite.

a) Fewer than 1 computer for every 3 administrative employees	20 %
b) 1 computer for every 2 to 3 administrative employees	22 %
c) 1 computer for every 1 to 2 administrative employees	35 %
d) At least 1 computer for each administrative employee	23 %

- 10] Have you been provided training in microcomputer use at your job?
- | | | | |
|--------|------|-------|------|
| a) Yes | 63 % | b) No | 37 % |
|--------|------|-------|------|
- 11] Estimate the number of hours of training you were provided in the use of microcomputers at your job.
- | | |
|---|------|
| a) Fewer than 3 hours (roughly one half-day session) | 51 % |
| b) From 3 to 6 hours (roughly one full-day session) | 32 % |
| c) From 6 to 30 hours (roughly several full-day sessions) | 13 % |
| d) More than 30 hours | 4 % |
- 12] Have you taken courses in administrative applications of technology?
- | | | | |
|---------------|------|----------------------|------|
| a) No courses | 77 % | b) 1 course | 18 % |
| c) 2 courses | 2 % | d) 3 or more courses | 3 % |
- 13] Word Processing
- | | | | |
|-------------------------|------|--------------------------------|------|
| a) Nil (none at all) | 25 % | b) Some (edit, save, & print) | 43 % |
| c) Advanced (format...) | 30 % | d) Expert (styles) | 2 % |
- 14] Data Bases
- | | | | |
|----------------------------|------|--------------------------------|------|
| a) Nil (none at all) | 34 % | b) Some (edit, save, & print) | 47 % |
| c) Advanced (sort, search) | 14 % | d) Expert (complex functions) | 8 % |
- 15] Spreadsheets
- | | | | |
|-------------------------|------|--------------------------------|------|
| a) Nil (none at all) | 63 % | b) Some (edit, save, & print) | 29 % |
| c) Advanced (functions) | 8 % | d) Expert (complex functions) | 0 % |
- 16] Charting
- | | | | |
|-----------------------|------|-------------------------------|------|
| a) Nil (none at all) | 73 % | b) Some (edit, save, & print) | 20 % |
| c) Advanced (re-size) | 7 % | d) Expert (complex changes) | 0 % |
- 17] Telecommunicating
- | | | | |
|----------------------------------|------|--------------------------|------|
| a) Nil (none at all) | 61 % | b) Some (use E-mail) | 34 % |
| c) Advanced (send/receive files) | 5 % | d) Expert (complex uses) | 0 % |
- 18] Desktop Publishing
- | | | | |
|-------------------------------------|------|----------------------------------|------|
| a) Nil (none at all) | 54 % | b) Some (print graphics) | 32 % |
| c) Advanced (print text & graphics) | 89 % | d) Expert (wrap text & graphics) | 3 % |
- 19] Desktop Presenting
- | | | | |
|--------------------------------|------|---------------------------------|------|
| a) Nil (none at all) | 79 % | b) Some (create transparencies) | 16 % |
| c) Advanced (present with LCD) | 0 % | d) Expert (LCD + memory module) | 5 % |

20] Hard disk drives			
a) Nil (none at all)	25%	b) Some (I've seen them)	23%
c) More (I've used them)	40%	d) Much (I'm competent)	12%
21] CD-ROM disk players			
a) Nil (none at all)	55%	b) Some (I've seen them)	29%
c) More (I've used them)	11%	d) Much (I'm competent)	5%
22] Videodisk players			
a) Nil (none at all)	46%	b) Some (I've seen them)	41%
c) More (I've used them)	11%	d) Much (I'm competent)	2%
23] Local Area Networks (LANs)			
a) Nil (none at all)	68%	b) Some (I've seen them)	16%
c) More (I've used them)	14%	d) Much (I'm competent)	2%
24] Scanners			
a) Nil (none at all)	46%	b) Some (I've seen them)	29%
c) More (I've used them)	23%	d) Much (I'm competent)	2%
25] Digitizers			
a) Nil (none at all)	80%	b) Some (I've seen them)	16%
c) More (I've used them)	2%	d) Much (I'm competent)	2%
26] Liquid Crystal Display Devices (LCDs)			
a) Nil (none at all)	55%	b) Some (I've seen them)	25%
c) More (I've used them)	18%	d) Much (I'm competent)	2%
27] Facsimile Machines (Fax)			
a) Nil (none at all)	34%	b) Some (I've seen it)	21%
c) More (I've used it)	41%	d) Much (I'm competent)	4%
28] Distance Learning			
a) Nil (none at all)	70%	b) Some (I've seen it)	18%
c) More (I've used it)	9%	d) Much (I'm competent)	3%
29] Hypermedia			
a) Nil (none at all)	88%	b) Some (I've seen it)	8%
c) More (I've used it)	2%	d) Much (I'm competent)	2%

- 30] Do you use a computer to network within your district or college?
a) Yes 65% b) No 35%
- 31] Do you use a computer to network outside your district or college?
a) Yes 27% b) No 73%
- 32] How would you describe the process used to plan for the educational use of technology in your school or district or college? Decisions are usually made:
a) Top-down 22%
b) By committees 50%
c) Independently by individuals 11%
d) The process defies description 17%
- 33] How would you describe the position of the educational use of technology in the budgeting process used by your school or district or college? Educational technology use is:
a) A permanent budget line-item 33%
b) Primarily budgeted on an "ad-hoc" basis 52%
c) Primarily funded by outside sources 15%
- 34] How important do you believe that appropriate educational use of technology is to your school or district or college?
a) Of no importance 0%
b) Of little importance 6%
c) Of considerable importance 17%
d) Very important 77%
- 35] How satisfied are you with the present state of your school or district or college in terms of the educational use of technology?
a) Very dissatisfied 13%
b) Somewhat dissatisfied 61%
c) Generally satisfied 22%
d) Very satisfied 4%
- 36] If you use a computer at work, which computer system do you use?
a) IBM compatible 52% b) Apple II 17%
c) Macintosh 19% d) Other 12%